

REMARKS

The Final Office Action dated June 15, 2005, has been received and reviewed.

Claims 1-33 are currently pending and under consideration in the abovereferenced application, each standing rejected.

Reconsideration of the above-referenced application is respectfully requested.

Claim Amendments

Claims 18 and 24 have been amended merely to correct typographical errors. These revisions do not narrow the scope of either claim 18 or claim 24.

Drawings

The drawings have been objected to under 37 C.F.R. § 1.83(a) for failing to illustrated each and every element recited in claims 3 and 14. Specifically, the Office has objected to the drawings for their purported failure to illustrate a linear feed system.

37 C.F.R. § 1.83(a) provides that, “where their detailed illustration is not essential for a proper understanding of the invention,” conventional features “should be illustrated in the drawing in the form of a graphical drawing symbol or labeled representation...” This rule does not prevent use of a single symbol or representation for a feature that may have multiple embodiments.

Paragraph [0051] of the above-referenced application discusses a “substrate handling system 600,” which is depicted both symbolically and with the label “600” in Figs. 1 and 2 of the above-referenced application. Without limiting the particular apparatus that may be used as “substrate handling system 600,” paragraph [0051] indicates that it may comprise “a rotary feed system or linear feed system.”

Thus, with respect to the subject matter recited in claims 3 and 14, the drawings illustrate a linear feed system and, thus, comply with the requirements of 37 C.F.R. § 1.83(a). Accordingly, withdrawal of the objection to the drawings is respectfully requested.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 24-33 stand rejected under 35 U.S.C. § 112, second paragraph, for reciting subject matter which is purportedly indefinite.

Specifically, it has been pointed out that claim 24 recites “the second fabrication site” without providing antecedent basis. It is noted that the last two elements of claim 24 were inadvertently reversed. Their order has been corrected, thereby providing antecedent basis for “the second fabrication site.”

Therefore, claim 24 and claims 25-33 depending directly or indirectly therefrom are now in condition for allowance under the second paragraph of 35 U.S.C. § 112.

Rejections Under 35 U.S.C. § 102

Claims 1-23 stand rejected under 35 U.S.C. § 102(b) for reciting subject matter that is allegedly anticipated by the subject matter described in U.S. Patent 3,889,355 to Aronsatein.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single reference which qualifies as prior art under 35 U.S.C. § 102. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Independent claim 1 is drawn to a programmable material consolidation system that includes at least one fabrication site and a substrate handling system configured to introduce one or more substrates into the at least one fabrication site. Independent claim 1 recites that a programmed material consolidation process may be effected at the at least one fabrication site.

It is apparent from the assertions that appear at page 8-10 of the Final Office Action that the Office does not appreciate the meaning of the phrase “programmed material consolidation.” By its plain language, that phrase refers to processes in which material is consolidated in accordance with or under control of a program.

In fact, at page 9 of the Final Office Action, language from the specification of the above-referenced application is cited to provide guidance as to the meaning of the phrase “programmed material consolidation.” It is notable that none of the processes that are mentioned

as examples of programmed material consolidation techniques is a conventional semiconductor device fabrication process.

This is especially true of “layered object manufacturing,” which is a proprietary term used to describe the process effected by equipment that was available from Helisys, Inc., of Torrance, California. “Layered object manufacturing” is described in U.S. Patents 5,730,817 and 5,876,550 to Feygin et al., copies of which are enclosed herewith for the sake of convenience.

“Programmed material consolidation” and “layered object manufacturing” do not include conventional semiconductor device fabrication processes. In particular, one of ordinary skill in the art would readily understand that photolithography processes, in which material is consolidated by exposing of a resist through a reticle and then using chemical developers, is neither “programmed material consolidation” nor “layered object manufacturing.” One of ordinary skill in the art would also readily understand that the consolidation of material films in deposition chambers does not include consolidation of the material in accordance with or under control of a program; rather, material consolidates in a nonspecific manner (*i.e.*, as a film) merely because of the chemical reactants that are introduced into the chamber and the conditions (*e.g.*, temperature, pressure, etc.) that are present in the chamber. Furthermore, one of ordinary skill in the art would readily understand that no other conventional semiconductor device fabrication process comprises “programmed material consolidation” or “layered object manufacturing.”

With that in mind, the description of Aronsatein is directed to a system for conveying individual semiconductor wafers from one conventional semiconductor device fabrication process sector to another. For example, the wafers may be transported between an oxidation sector, a source and drain fabricating sector, a gate oxidation sector, a pattern generating unit, a metallization sector, and a sintering sector. Col. 23, lines 59-66. Identification and movement of each wafer may be controlled by a computer (col. 24, line 17, to col. 26, line 4), but consolidation of material over the wafers is not.

Thus, the system of Aronsatein is not a programmable material consolidation system. Rather, it is a semiconductor device fabrication system. Moreover, while the semiconductor device fabrication system of Aronsatein includes a variety of process sectors, Aronsatein includes no express or inherent description that any of these process sectors is configured for effecting a

programmed material consolidation process. Therefore, Aronsatein does not anticipate each and every element of independent claim 1, as would be required to maintain the 35 U.S.C. § 102(b) rejection of independent claim 1.

Claims 2-11 are each allowable among other reasons, for depending directly or indirectly from claim 1, which is allowable.

Claim 2 is further allowable since Aronsatein lacks any express or inherent description of a substrate handling system that comprises a rotary feed system. An example of a rotary feed mechanism is disclosed in U.S. Patent 6,121,743 to Genov et al., a copy of which is enclosed herewith for the sake of convenience. Although col. 9, lines 4-8 mentions that handlers 31 may rotate wafers from a horizontal orientation to a vertical orientation, Aronsatein does not expressly or inherently describe that such rotation is effected by a rotary feed system. Rather, as FIG. 4 of Aronsatein clearly shows, handlers 31 travel along a linear path.

Claims 4 and 8 are additionally allowable since Aronsatein does not expressly or inherently describe a system that includes a plurality of fabrication sites for effecting a programmed material consolidation process. Again, the description of Aronsatein is limited to a system that includes a plurality of process sites that effect conventional semiconductor device fabrication processes.

Independent claim 12 recites a programmable material consolidation system that includes means for fabricating one or more objects and means for handling one or more substrates. The means for fabricating uses a programmed material consolidation process.

The system of Aronsatein is a semiconductor device fabrication system, not a programmable material consolidation system. Further, the system described in Aronsatein lacks means for fabricating that uses a programmed material consolidation process. Therefore, Aronsatein does not anticipate each and every element of independent claim 12, as would be required to maintain the 35 U.S.C. § 102(b) rejection of amended independent claim 12.

Each of claims 13-23 is allowable, among other reasons, for depending directly or indirectly from claim 12, which is allowable.

Claim 13 is further allowable since Aronsatein lacks any express or inherent description of a substrate handling system that comprises a rotary feed system. Again, the disclosure of Aronsatein is limited to handlers 31 that travel along a linear path.

Claims 16 and 20 are additionally allowable since Aronsatein does not expressly or inherently describe a system that includes a plurality of means for fabricating that use a programmed material consolidation process. The process stations of the system described in Aronsatein are, instead, stations for effecting conventional semiconductor device fabrication processes.

It is respectfully requested that the 35 U.S.C. § 102(b) rejections of claims 1-23 be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

Claims 24-33 stand rejected under 35 U.S.C. § 103(a) for reciting subject matter which is assertedly unpatentable over the subject matter taught in U.S. Patent 4,027,246 to Caccoma (hereinafter “Caccoma”), in view of teachings from Aronsatein.

Like Aronsatein, the disclosure of Caccoma is limited to a semiconductor device fabrication system that includes a variety of process sectors that are used to fabricate integrated circuits on a semiconductor wafer.

Independent claim 24 is directed to a programmed material consolidation method for fabricating objects. The method of independent claim 24 includes selecting at least one first substrate, introducing the at least one first substrate into a first fabrication site with a substrate handling system, selecting at least one second substrate, and introducing the at least one second substrate into a second fabrication site with the substrate handling system. Additionally, the method of independent claim 24 includes fabricating at least a portion of at least one object on the first and second substrates at the first and second fabrication sites, respectively.

Neither Caccoma nor Aronsatein teaches or suggests that a programmed material consolidation process may be used to form at least a portion of at least one object at any of the pieces of fabrication equipment, or process sectors or stations, of the systems disclosed therein. Rather, each of the process sectors or stations of both Caccoma and Aronsatein is limited to

effecting a single, conventional semiconductor device fabrication process (*e.g.*, oxidation, doping, metallization, photomask formation, etching, cleaning, etc.), none of which includes a programmed material consolidation process.

Therefore, under 35 U.S.C. § 103(a), independent claim 24 recites a programmed material consolidation method which is allowable over the semiconductor device fabrication processes described in Caccoma and Aronsatein.

Each of claims 25-33 is allowable, among other reasons, for depending directly or indirectly from claim 24, which is allowable.

Withdrawal of the 35 U.S.C. § 103(a) rejections of claims 24-33 is respectfully solicited.

Entry of Amendments

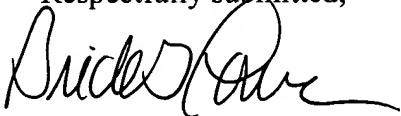
It is respectfully requested that the proposed claim amendments be entered, as they do not introduce new matter into the application and their entry would not require an additional search. Further, the proposed amendment to claim 24 addresses a typographical error and eliminates the 35 U.S.C. § 112, second paragraph, rejection of that claim.

In the event that a decision is made not to enter the proposed claim amendments, entry thereof upon the filing of a Notice of Appeal in the above-referenced application is respectfully requested.

CONCLUSION

It is respectfully submitted that each of claims 1-33 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



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